

L15 ANSWER 3 OF 12 WPIDS COPYRIGHT 2001 DERWENT INFORMATION LTD

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TI The damascene inner-wiring process which uses the organic polymer of low-dielectrics constant as the etch stop layer - which could not only elevate the etch selective ratio between SiON layer and the inter-layer dielectrics (IMD).

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NOVELTY - The copper metal damascene inner-wiring technique is more and more important in today's multi-layer inner-wiring process; however, since the selectivity of etching is not good between the silicon nitride (SiON) layer used generally as the etch stop layer and the inter-layer dielectrics (IMD) with silicon oxide substance, it could not provide efficient protection, although it could improve this problem by increasing the thickness of the silicon nitride but it will cause the drawback of increasing the parasitic capacitor. Thus, this invention provides a betterment process which utilizes the organic polymer with low dielectrics constant such as poly(arylene ether) polymer as the etch stop layer of the defining damascene opening structure, which could not only elevate the etch selective ratio between it and the inter-layer dielectrics (IMD) but also maintain low dielectrics constant without increasing the parasite capacitance and lowering the RC performance of the devices.

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